



JUN 9 2006

PTO/SB/08a (05-03)

Approved for use through 04/30/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<p style="text-align: center;"><b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i></p>				<b>Complete if Known</b>	
				Application Number	10/042,549
				Filing Date	January 9, 2002
				First Named Inventor	MICHALUK
				Art Unit	1742
				Examiner Name	Lols L. Zheng
Sheet	1	of	5	Attorney Docket Number	CPM00029CIP (3600-328-01)

## **U.S. PATENT DOCUMENTS**

## FOREIGN PATENT DOCUMENTS

**\*EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. **'Applicant's unique citation designation number (optional).** **^See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04.** **Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).** **For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.** **Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.** **^Applicant is to place a check mark here if English language Translation is attached.** **Burden Hour Statement:** This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				Complete if Known	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Application Number	10/042,549
Sheet	2	of	5	Filing Date	January 9, 2002
				First Named Inventor	MICHALUK ..
				Art Unit	1742
				Examiner Name	Lois L. Zheng
				Attorney Docket Number	CPM00029CIP (3600-328-01)

NON PATENT LITERATURE DOCUMENTS					
Examiner initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city, and/or country where published.			T <sup>2</sup>
LLB		LASSILA et al., "Mechanical Behavior of Tantalum and Tantalum-Tungsten Alloys: Texture Gradients and Macro/Micro-Response," 14 <sup>TH</sup> U.S. ARMY SYMPOSIUM ON SOLID MECHANICS, November 30, 1996 (14 pgs.)			
		MICHALUK, "Deformation Behavior of Tantalum-Tungsten Alloys," a Thesis submitted to the Faculty of Drexel University, December 1993 (158 pgs.)			
		MICHALUK et al., "The Effect of Oxygen, Grain Size, and Strain Rate on the Mechanical Behavior of Forged P/M Tantalum," date unknown (pp. 195-204)			
		HOGE, "Influence of Strain Rate on Flow Stress of Tantalum," Lawrence Radiation Laboratory, University of California, Paper 15A.4, date unknown (pp. 995-1000)			
		FOLLANSBEE, "The Hopkinson Bar," HIGH STRAIN RATE TESTING, date unknown (pp. 198-203)			
		RUDOLPH et al., "The Deformation of Tantalum-Niobium and Tantalum-Molybdenum Single Crystals," Z. METALLKDE., No. 58, H. 10, 1967 (pp. 708-713)			
		REGAZZONI et al., "Influence of Strain Rate on the Flow Stress and Ductility of Copper and Tantalum at Room Temperature," Inst. Phys. Conf. Ser. No. 70, paper presented at 3 <sup>RD</sup> Conf. Mech. Prop. High Rates of Strain, Oxford, 1984 (pp. 63-70)			
		DIAZ et al., "Evidence for Slow Strain-Rate Embrittlement in Tantalum Due to Oxygen," SCRIPTA METALLURGICA, Vol. 13, 1979 (pp. 491-496)			
		Author unknown, "Reihenentwicklung von Orientierungsverteilungskunktionen," date known (pp. 24-25) (in German)			
		MUNDEKIS et al., "Effects of Rolling Schedule and Annealing on the High Strain Rate Behavior of Tantalum," THE MINERALS, METALS & MATERIALS SOCIETY, 1992 (pp. 77-96)			
		ARSENAULT et al., "Work-Hardening Characteristics of Ta and Ta-Base Alloys," date unknown (pp. 283-301)			
		LANDRUM et al., "The Effects of Cold-Flowing on Tantalum Material Properties," THE MINERALS, METALS & MATERIALS SOCIETY, 1992 (pp. 59-76)			
		KEH et al., "Deformation Substructure in Body-Centered Cubic Metals," SINGLE PHASE MATERIALS, Chapter 5, date unknown (pp. 231-264)			
		GOURDIN et al., "The Influence of Tungsten Alloying on the Mechanical Properties of Tantalum," JOURNAL DE PHYSIQUE IV, Colloque C8, Vol. 4, September 1994 (pp. C8-207-C8-212)			
		Author unknown, "Solid Solutions," Chapter 6, date unknown (pp. 144-149)			
		LASSILA et al., "Effects of Shock Prestrain on the Dynamic Mechanical Behavior of Tantalum," JOURNAL DE PHYSIQUE IV, Colloque C3, Vol. 1, October 1991 (pp. C3-19-C3-26)			
		ULITCHNY et al., "The Effects of Interstitial Solute Additions on the Mechanical Properties of Niobium and Tantalum Single Crystals," JOURNAL OF THE LESS-COMMON METALS, Vol. 33, 1973 (pp. 105-116)			
		POKROSS, "Tantalum Micro-Alloys," supplied by the British Library, date unknown (pp. 297-330)			
		HULL et al., "Introduction to Dislocations," 3 <sup>RD</sup> Edition, 1984 (cover page & contents pages v-vii only)			
		Author unknown, "Mechanical Fundamentals," Dieter Mech. Metallurgy, 3 <sup>RD</sup> Ed., 1986 (pp. 82-86)			
		GRAY et al., "The High-Strain-Rate and Spallation Response of Tantalum, Ta-10W, and T-111," THE MINERALS, METALS & MATERIALS SOCIETY, 1992 (pp. 303-315)			
✓		RAJENDRAN et al., "Effects of Strain Rate on Plastic Flow and Fracture in Pure Tantalum," J. MATER. SHAPING TECHNOL., Vol. 9, 1991 (pp. 7-20)			
Examiner Signature				Date Considered	8/1/06

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 801.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>5</sup>Applicant is to place a check mark here if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Application Number	10/042,549
Sheet	3	of	5	Filing Date	January 9, 2002
				First Named Inventor	MICHALUK
				Art Unit	1742
				Examiner Name	Lois L. Zheng
				Attorney Docket Number	CPM00029CIP (3600-328-01)

NON PATENT LITERATURE DOCUMENTS			
Examiner initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city, and/or country where published.	T <sup>2</sup>
LLS		CARDONNE et al., "Tantalum and Its Alloys," ADVANCED MATERIALS & PROCESSES, Vol. 142, No. 3, September 1992 (pp. 16-20)	
		POKROSS, "Tantalum," Metals Handbook, 10 <sup>th</sup> Ed., Vol. 2, Properties and Selection: Nonferrous Alloys and Special-Purpose Materials, 1990 (pp. 571-574)	
		RAMAN et al., "Rapid Consolidation of Tantalum: Non Conventional Microstructure and Resultant Dynamic Mechanical Properties," supplied by the British Library, date unknown (pp. 559-571)	
		BARBEE et al., "Dislocation Structures in Deformed and Recovered Tantalum," JOURNAL OF THE LESS-COMMON METALS, Vol. 8, 1965 (pp. 306-319)	
		FUJII et al., "On the Rolling Deformation and Recrystallization of (111) [112] Single Crystals of High-Purity Tungsten, Molybdenum and Tantalum," JOURNAL OF THE LESS-COMMON METALS, Vol. 39, 1975 (pp. 161-172)	
		WELCH et al., "Consideration of Anisotropy Parameters in Polycrystalline Metals," Z. METALLKDE, Bd. 74, H. 4, 1983 (pp. 233-237)	
		ARSENAULT, "Effects of Strain Rate and Temperature on Yield Points," TRANSACTIONS OF THE METALLURGICAL SOCIETY OF AIME, Vol. 230, December 1964 (pp. 1570-1576)	
		GRAY et al., "Influence of Peak Pressure and Temperature on the Structure/Property Response of Shock Loaded Ta and Ta-10W," METALLURGICAL AND MATERIALS TRANSACTIONS A, Vol. 26A, October 1995 (pp. 2555-2563)	
		GIANNOTTA et al., "Ductility and Flow Rule of Tantalum at 20° C and 500° C," JOURNAL DE PHYSIQUE, Colloque C5, No. 8, Tome 46, August 1985 (pp. C5-49-54)	
		FERRISS et al., "Deformation of Tantalum Single Crystals," TRANSACTIONS OF THE METALLURGICAL SOCIETY OF AIME, Vol. 224, October 1962 (pp. 975-981)	
		MITCHELL et al., "Mechanical Properties of Some Tantalum Alloys," CANADIAN JOURNAL OF PHYSICS, Vol. 45, 1967 (pp. 1047-1062)	
		ARSENAULT, "An Investigation of the Mechanism of Thermally Activated Deformation in Tantalum and Tantalum-Base Alloys," ACTA METALLURGICA, Vol. 14, July 1966 (pp. 831-838)	
		ZERILLI et al., "Description of Tantalum Deformation Behavior by Dislocation Mechanics Based Constitutive Relations," J. APPL. PHYS. Vol. 68, No. 4, August 15, 1990 (pp. 1580-1591)	
		MICHALUK et al., "The Effects of Texture and Strain on the R-Value of Heavy Gauge Tantalum Plate," MATERIALS SCIENCE FORUM, Vol. 157-162, 1994 (pp. 1653-1662)	
		SPITZIG et al., "Dislocation Arrangements in Tantalum Single Crystals Deformed in Tension at 373°K," ACTA METALLURGICA, Vol. 14, October 1966 (pp. 1311-1323)	
		HOGE et al., "The Temperature and Strain Rate Dependence of the Flow Stress of Tantalum," JOURNAL OF MATERIALS SCIENCE, Vol. 12, 1977 (pp. 1666-1672)	
		FYFE et al., "Dynamic Pre-Strain and Inertia Effects on the Fracture of Metals," J. MICH. PHYS. SOLIDS, Vol. 28, 1980 (pp. 17-26)	
		PAPPU et al., "High-Strain-Rate Behavior of Pure Tantalum in Explosively Formed Penetrator and Shaped Charge Regimes," METALLURGICAL AND MATERIALS APPLICATIONS OF SHOCK-WAVE AND HIGH-STRAIN-RATE PHENOMENA, 1995 (pp. 495-502)	
		WRIGHT et al., "Texture Gradient Effects in Tantalum," Materials Science Forum, Vol. 157-162, 1994 (pp. 1695-1700)	
		MITCHELL et al., "Three-Stage Hardening in Tantalum Single Crystals," ACTA METALLURGICA, Vol. 13, November 1965 (pp. 1169-1179)	
Examiner Signature			Date Considered <i>8/1/06</i>

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 18 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				<b>Complete If Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				Application Number	10/042,549
				Filing Date	January 9, 2002
				First Named Inventor	MICHALUK
				Art Unit	1742
				Examiner Name	Lois L. Zheng
Sheet	4	of	5	Attorney Docket Number	CPM00029CIP (3600-328-01)

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city, and/or country where published.	T <sup>2</sup>	
<i>ley</i>		SUZUKI, "Development of Refractory Metals and Silicides Targets, and Their Characteristics," MATERIALS RESEARCH SOCIETY, 1987 (pp. 339-345)		
		OHBA et al., "Effect of Zone-Refining on Orientations of Recrystallized Grains Formed in Rolled and Annealed Pure Mo and Ta Single Crystals," JOURNAL OF THE LESS-COMMON METALS, Vol. 52, 1977 (pp. 93-99)		
		FUJII et al., "On the Deformation and Recrystallization of (001)(110) Single Crystals of Pure Tungsten Rolled at 200° C and Tantalum at 100° C," TRANS. JIM, Vol. 16, 1975 (pp. 219-224)		
		KANEKO et al., "Mechanical Properties of Ta Single Crystals Grown by Electron Beam Melting Methods," publication and date unknown (Abstract in English)		
		KANEKO, "The Effect of Crystallographic Orientation on Mechanical Properties of Ta Single Crystals Grown by Electron Beam Melting Methods," publication and date unknown (pp. 22-30) (Abstract in English)		
		SINGH, "Ultrapurification of Refractory Metals," HIGH TEMPERATURE MATERIALS AND PROCESSES, Vol. 11, Issue 1-4, January 1993 (pp. 305-349)		
		IZUMI, "Processing of Ta Powder and Mill Products at Showa-Cabot Supermetal Higashi-Nagahara Plant," SHIGEN-TO-SOZAI, Vol. 109, 1993 (pp. 1181-1186)		
		OKAMOTO et al., "Determination of Th, U, Na and K in High-Purity Tantalum," JOURNAL OF THE IRON AND STEEL INSTITUTE OF JAPAN, 1991 (pp. 1929-1935) (Synopsis in English)		
		PARK et al., "Determination of Impurities in Tantalum by a Radiochemical Neutron Activation Analysis," JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY, Articles, Vol. 168, No. 2, 1993 (pp. 497-502)		
		KRIVAN et al., "Analysis of Tantalum by ICP-AES Involving Trace-Matrix Separation," FRESENIUS J. ANAL. CHEM., Vol. 341, 1991 (pp. 550-554)		
		TAKAHASHI et al., "Determination of Impurities in High Purity Tantalum by Inductively Coupled Plasma Atomic Emission Spectrometry with Ion Exchange Method," KAWASAKI STEEL GIHO, Vol. 21, No. 2, 1989 (pp. 119-123)		
		IZUMI, "Improvement in Characteristics of High Purity Tantalum by Doping and Embrittlement Mechanism of Tantalum Wire Used in Tantalum Capacitors," publication and date unknown (pp. 59-84) (in Japanese with English translation, pp. 24-51)		
		"Materials for Evaporation & Sputtering, MATERIALS RESEARCH CORPORATION, Third Edition, Nov. 1980 (pp. 1-24)	"	
		GRUBER et al., "Electron Beam Melting with Multiple Guns," TRANSACTIONS OF THE EIGHTH NATIONAL VACUUM SYMPOSIUM, COMBINED WITH THE SECOND INT'L. CONGRESS ON VACUUM SCIENCE AND TECHNOLOGY, Vol. 2, October 16-19, 1961 (pp. 722-731)		
		CHOI et al., "Textures of Tantalum Metal Sheets by Neutron Diffraction," JOURNAL OF MATERIALS SCIENCE, Vol. 28, 1993 (pp. 3283-3290)		
		SIBLEY et al., "Experience with an Electron Beam Melting Furnace," publication and date unknown (pp. 714-721)		
		CLARK et al., "Influence of Transverse Rolling on the Microstructural and Texture Development in Pure Tantalum," METALLURGICAL TRANSACTIONS A, Vol. 23A, August 1992 (pp. 2183-2191)		
		CLARK et al., "Influence of Initial Ingot Breakdown on the Microstructural and Textural Development of High-Purity Tantalum," METALLURGICAL TRANSACTIONS A, Vol. 22A, December 1991 (pp. 2959-2968)		
		POKROSS, "Controlling the Texture of Tantalum Plate," JOM, October 1989 (pp. 46-49)		
<i>✓</i>		KUMAR et al., "Corrosion Resistant Properties of Tantalum," Corrosion 95, Paper No. 253, 1995 (pp. 253/1 - 253/16)		
Examiner Signature	<i>[Signature]</i>		Date Considered	8/11/06

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>5</sup>Applicant is to place a check mark here if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				<i>Complete if Known</i>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				Application Number	10/042,549
				Filing Date	January 8, 2002
				First Named Inventor	MICHALUK
				Art Unit	1742
				Examiner Name	Lois L. Zheng
Sheet	5	of	5	Attorney Docket Number	CPM00029CIP (3600-328-01)

## **NON PATENT LITERATURE DOCUMENTS**

**\*EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 801.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached. Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:** Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.